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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,860

09/05/2003

Frank Edward Anderson

2001-0698.02

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21972

7590

12/01/2004

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EXAMINER

STEPHENS, JUANITA DIONNE

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/656,860

Applicant(s)

ANDERSON ET AL.

Examiner

Juanita D. Stephens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Preliminary Amendment filed 12/22/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 12-16, 18, 19, 24-26 and 28 is/are rejected.
- 7) ☒ Claim(s) 5, 8-11, 17 and 20-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

Claim 27 canceled.

#### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the “printhead” recited in claims 1, 3, and 14; the “plurality of nozzles” recited in claims 1, 3, and 14; the “media” recited in claims 1 and 3; the “resistor” recited in claims 1 and 3; the “firing elements” recited in claim 14; the “two or more capacitors” recited in claims 4 and 16; the “surface mount package” recited in claims 5 and 17** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 5-11, 17 and 19-23 are objected to because of the following informalities:

In claim 6, line 1 replace "claim 1" with --claim 3--. The recitation of "capacitor means" was recited in claim 3, not claim 1.

In claim 7, line 2 delete "or capacitor means". Claim 7 depend on claim 1, which recite "a capacitor", not "capacitor means.

In claim 8, line 2 delete "or capacitor means".

In claim 9, line 2 delete "or capacitor means".

In claim 10, line 2 delete "or capacitor means".

In claim 11, line 2 delete "or capacitor means".

In claim 19, line 2 delete "capacitor or". Claim 19 depends on claim 14, which recites "capacitor means".

In claim 20, line 2 delete "capacitor or".

In claim 21, line 2 delete "capacitor or".

In claim 22, line 2 delete "capacitor or".

In claim 23, line 2 delete "capacitor or".

Claims 5 and 17 the recitation of "a surface mount package" is not clear.

Appropriate correction is required.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

On page 1 delete lines 5-7 .

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 12-15, 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitazawa (US 5,835,115).

Kitazawa discloses a method of improving power delivery to ink nozzle firing elements of an inkjet printhead and an apparatus (Fig. 1) comprising: **1)** an inkjet printhead (2)(Figs.1 and 2), **2)** a plurality of nozzles (222)(Fig. 4) for forming ink drops to be ejected onto print media in an ink jet printer, **3)** a printhead resistor (223)(Figs. 4 and 13) for firing the nozzles, **4)** a capacitor/capacitor means (607) on the ink jet print head for supplying current to head the printhead resistor to cause the nozzles to fire (col 8, lns 46-67; Fig. 13), **5)** an inkjet printhead cartridge (color cartridge 10 and black cartridge 11) comprising the inkjet printhead (2) (col 1, lns 8-14, Fig. 2); **6)** an inkjet printer comprising the inkjet printhead cartridge (col 1, lns 8-14, Fig. 1), **7)** installing the inkjet printhead in an inkjet printhead cartridge (Fig. 1), and **8)** installing the inkjet printhead cartridge in an inkjet printer (Fig. 1).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 6, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitazawa (US 5,838,115) in view of Applicants Admitted Prior Art (AAPA).

Kitazawa discloses a method of improving power delivery to ink nozzle firing elements of an inkjet printhead and an apparatus (Fig. 1) comprising: **1)** an inkjet printhead (2)(Figs.1 and 2), **2)** a plurality of nozzles (222)(Fig. 4) for forming ink drops to be ejected onto print media in an ink jet printer, **3)** a printhead resistor (223)(Figs. 4 and 13) for firing the nozzles, **4)** a capacitor/capacitor means (607) on the ink jet print head for supplying current to head the printhead resistor to cause the nozzles to fire (col 8, lns 46-67; Fig. 13), **5)** an inkjet printhead cartridge (color cartridge 10 and black cartridge 11) comprising the inkjet printhead (2) (col 1, lns 8-14, Fig. 2); **6)** an inkjet printer comprising the inkjet printhead cartridge (col 1, lns 8-14, Fig. 1), **7)** installing the inkjet printhead in an inkjet printhead cartridge (Fig. 1), and **8)** installing the inkjet printhead cartridge in an inkjet printer (Fig. 1).

Kitazawa does not disclose that the capacitor has a capacitance of about 22 uF. However, AAPA discloses that the value of the capacitor 5 can be the same as that of capacitors used in prior art systems, typically 5-50 uF (page 7, lns 1-2). It would have been obvious at the time the invention was made to a person having ordinary skill in the

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inkjet art to modify Kitazawa to specifically provide the known prior art capacitance of about 5-50 uF as taught to be old in AAPA for the purpose of reducing the impedance between the capacitor and the printhead, allowing the capacitor to be matched to the printhead cartridge firing requirements, allowing remote voltage sensing at the printhead, providing better voltage regulation at the printhead, and reducing the likelihood the printhead electronics will be damaged due to voltage spiking.

8. Claims 4, 7, 16, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Kitazawa (US 5,838,115) in view of Schulte et al. (6,567,251 B1).

Kitazawa is discussed above. Kitazawa does not disclose 1) wherein the capacitor means includes two or more capacitors (recited in claims 4 and 16), and 2) wherein the capacitor comprise layer ceramic of tantalum material (recited in claims 7 and 19). Schulte et al. at least teaches wherein the capacitor means (330) includes two or more capacitors and wherein the capacitor comprises layer ceramic of tantalum material (col 7, Ins 9-10, Ins 36-38, Fig. 3). It would have been obvious at the time the invention was made to a person having ordinary skill in the ink jet art to modify Kitazawa by providing the capacitor/capacitor means as taught to be old by Schulte et al. for the purpose of providing protection of electrostatic discharge events for not only electrical components, but also the electrically-inactive components.

9. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitazawa (US 5,838,115) in view of Hawkins et al. (US 5,010,355).

Kitazawa is discussed above. Kitazawa does not disclose wherein the printhead is a CMOS printhead. Hawkins et al. at least teaches that there are two type of

semiconductor devices which could be used for integration on the part of the printhead containing heating elements, which are bipolar and MOS, wherein MOS includes CMOS and NMOS (col 3, lns 48-51). It would have been obvious at the time the invention was made to a person having ordinary skill in the ink jet art to modify Kitazawa by providing the well known CMOS printhead as taught to be old by Hawkins et al. for the purpose of self shut down of self regulation of current over the total channel width of the device.

***Allowable Subject Matter***

10. Claims 8-11 and 20-23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The limitation of wherein the capacitor of capacitor means is around 1.0-3.2 mm wide by 1.25-2.5 mm long by 0.5 high, recited in claims 8 and 20. This invention solves the problem of reducing the impedance between the capacitor and the printhead, allowing the capacitor to be matched to the printhead cartridge firing requirements, allowing remote voltage sensing at the printhead, providing better voltage regulation at the printhead, and reducing the likelihood the printhead electronics will be damaged due to voltage spiking.

The limitation of wherein the capacitor of capacitor means is around 3.2 mm wide by 2.5 mm long by 0.5 high, recited in claims 9 and 21. This invention solves the problem of reducing the impedance between the capacitor and the printhead, allowing



the capacitor to be matched to the printhead cartridge firing requirements, allowing remote voltage sensing at the printhead, providing better voltage regulation at the printhead, and reducing the likelihood the printhead electronics will be damaged due to voltage spiking.

The limitation of wherein the capacitor of capacitor means is around 3.2 mm wide by 1.6 mm long by 0.5 high, recited in claims 10 and 22. This invention solves the problem of reducing the impedance between the capacitor and the printhead, allowing the capacitor to be matched to the printhead cartridge firing requirements, allowing remote voltage sensing at the printhead, providing better voltage regulation at the printhead, and reducing the likelihood the printhead electronics will be damaged due to voltage spiking.

The limitation of wherein the capacitor of capacitor means is around 2.0 mm wide by 1.25 mm long by 0.5 high, recited in claims 11 and 23. This invention solves the problem of reducing the impedance between the capacitor and the printhead, allowing the capacitor to be matched to the printhead cartridge firing requirements, allowing remote voltage sensing at the printhead, providing better voltage regulation at the printhead, and reducing the likelihood the printhead electronics will be damaged due to voltage spiking.

### **Comments**

12. With respect to claims 5 and 17 no prior art has been applied, since it is unclear as to what applicant is claiming.

### **Contact Information**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Juanita D. Stephens  
Primary Examiner  
Art Unit 2853

November 24, 2004